ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION,

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. III. OCTOBER, 1892. No. 8.

CONTENTS:

Nolan—The Introduction of the Ailanthus Silk Worm Moth..... 193
Kunze—Larva hunting in Winter..... 195
Fox—A new Solitary Wasp..... 197
Smith—Elementary Entomology..... 198
Goding—N. American Membracidæ..... 200
Cockerell—Entomology of Colorado... 202
Editorial..... 205
Economic Entomology..... 206
Notes and News..... 209
Entomological Literature..... 212

OUR plate this month represents the upper and under side of *Sphinx rustica* Fabr., with its larva and chrysalis. The original drawing was made by the late Titian R. Peale, the artist entomologist. The plate represents the objects reduced in size, the moth expanding five inches and the full-grown larvæ being about four and a half inches in length.

———o———

The Introduction of the Ailanthus Silk Worm Moth.

By EDW. J. NOLAN, M. D.

The attention of Dr. Thomas Stewardson, then Corresponding Secretary of the Academy of Natural Sciences, of Philadelphia, having been drawn, in 1860, by various notices published in the "Bulletin of the Society of Acclimation" and other French journals, to the recent introduction of the Ailanthus Silk Worm, *Attacus cynthia*, into France, he succeeded in obtaining from Mons. Guerin-Meneville specimens of the caterpillar, the fly, the cocoon and the silk in various stages of preparation.* In June of that year a number of eggs were also sent to him from Paris, but they were nearly all spoiled in consequence of being hatched on the voyage. Another lot sent a few days later reached him

* Proc. Acad. Nat. Sci. Phila., 1861, p. 525.

in good condition, and from these, with the assistance of a silk manufacturer in the neighborhood of Philadelphia, he succeeded in raising a few worms, which formed their cocoons in July.

Toward the middle of August the moths made their appearance, and the eggs laid by them hatched their worms from August 30th to September 3d. Some of these were placed by Dr. Stewardson on a tree in a private garden; some were set out on trees in the suburbs, and others were fed by him in a room at his house. Of the first lot, nearly all came to maturity; many of those placed in the country were destroyed by birds, and about forty cocoons were secured from those raised in the house. The success with the worms placed on the trees, except for the attacks of birds, was entirely satisfactory, and proved to the experimentors, apparently, the possibility of raising two crops of the insect during the proper season if reasonable care were taken to preserve them from injury.

On the appearance of the first crop of caterpillars in the Spring or early Summer of 1862, Dr. Stewardson was still sufficiently interested in them to supply them with food, but the work was becoming irksome. As Corresponding Secretary of the Academy, most of his leisure time was spent in the room in the northeast corner of the building, which was then situated at Broad and Sansom Streets, and now forms part of the Lafayette Hotel. My duties as Assistant Librarian placed me in constant communication with the doctor, and I became intensely interested in his caterpillars, their growth and their work. I was, therefore, delighted when the opportunity was given to me to take charge of them and look after their allowance of Ailanthus leaves. The supply was abundant, and fresh, crisp leaves were placed in glass jars in the Librarian's room as often as a change was necessary. The work was continued during the fall of 1862 and the Spring and Summer of 1863. In the Autumn of the latter year I began the study of chemistry with Dr. Robert E. Rogers, in the University of Pennsylvania, preparatory to matriculating as a student of medicine. My time was then so occupied that it was increasingly difficult to look after my pets, which, in spite of the fact that not all of the successive broods had been preserved, numbered at the time some hundreds and required constant attention to save them from starvation.

The yard of Dr. Roger's laboratory, at the back of the Medi-

cal Department of the University, which was then located on Ninth Street above Chestnut, where the Post-office now stands, adjoined the yard of a house formerly occupied, it is said, by the distinguished chemist, Dr. Hare. A large Ailanthus tree grew here, the branches of which extended over the premises of the laboratory. The more vigorous of the silk worms (so called) were selected, and, with the consent of Dr. Rogers and the occupant of the house referred to, were placed on the branches of this tree early in October, 1863, to the number of a couple of hundred. Here they were left to their fate, and, in truth, entirely forgotten in the press of other interests until the Winter of the following year (1864), when, on examining the tree, about forty cocoons were found, the petioles of the leaves on which they were spun being fastened to the otherwise naked branches by strands of silk in the way so characteristic of the Ailanthus moth. They were left here undisturbed, the survivors of the original colony of the year before. The tree was vigorous, was secluded from storms and visited by few birds. There is, therefore, no reason to doubt that a large number of flies had been distributed from this point during the preceding season, and it may, therefore, be considered the main centre from which this interesting and beautiful addition to our local fauna has proceeded, although some, of course, have descended from the out-door colonies placed by Dr. Stewardson himself.

The species was brought from China to Turn in 1857, and its cultivation in France was begun the following year. Dr. Stewardson hoped to benefit his fellow-citizens by bringing the insect to America, but its introduction does not seem to have produced much practical result, although the fly, with increasing frequency, forms an interesting feature of the local collector's cabinet, and may therefore be regarded as having come to stay.

LARVA HUNTING IN WINTER.

By RICHARD E. KUNZE, M. D., New York.

With the swamps well frozen over, although light snowsqualls made it disagreeable enough, I hunted the larvæ of *Arzama obliquata* the first time this Winter, Feb. 7, 1892. They bore the stems of *Typha latifolia* or Cat-tail flag, and Great Reed Mace, so called. Inasmuch as they hibernate in the galleries bored out

of the pithy part of the stalk of *Typha*, which line the shores of small creeks and rivers traversing the saltmeadows of the Atlantic sea-board, they are readily found. Dr. Kellicott, regarding hibernation of *obliquata*, states that the larva leaves the stem in the fall and crawls into the earth or old wood to hibernate until April or May, vide "American Naturalist," vol. xvii, p. 1172, 1883. On Long Island this larva is abundantly found hibernating in the stem of *Typha* throughout the whole Winter. I have taken larvæ out of galleries only a few inches above the frozen water line, and with thin sheets of ice formed by the moisture of the stem, completely surrounding the outstretched larva, which so filled up this gallery, that it seemed to be tightly wedged in place. Removing a part of the stem and carrying it in my pocket a short time, the larva soon showed great activity by moving up or down the narrow gallery at a lively speed, either backwards or forwards at pleasure. Have found them as high as two feet above water line, in the borings of thick stems, free from moisture, and all these stalks exhibit a number of openings as large as thickness of a pencil, so that they are easily singled out. I find more near where the fresh and brackish waters meet, than in the open salt meadows where *Typha* grows thickest. In fact, a few Cat-tails of very vigorous growth in a fresh-water swamp adjoining salt meadows, are preferable to an acre of the former. In an hour's time I found seven larvæ, and on examining some *Typha* stems I brought home for another purpose I found three more, making ten in all, of which one represented another species.

Perhaps it is not superfluous to state that the larva is mature before hibernating and pupates in the stem of *Typha*, if undisturbed, early in Spring. I found lots of empty pupa cases in stems more than a year old. The woody fibre of these withstands the effect of elements fully two years. In hunting larvæ I have often split open a two-year old stem in a mistake, my benumbed fingers not readily detecting the softer texture of the latter from the more firm and newer growth.

Sometimes more than one larva is found in a stem, and I think the flower-bearing stalk being strongest, yields more than the leaf-bearing kind. In the stronger stems I found larvæ three feet above the ground. I place the collected larvæ in wide-mouth bottles containing sphagnum, leaving those which have not been disturbed in their respective stems. After pupation, which some

do in the moss and others in their galleries, the imago has an opportunity to crawl upon the stem and develop after emerging. I place the larvæ in a cold hallway or out-house, during Winter. Have collected such from December up to late in April.

Dr. Riley states in "American Naturalist," vol. xvii, p. 1169, that *A. obliquata* also bores the stems of *Sagittaria* (Arrow-head) and *Pontederia* (Pickerel Weed), whereas Dr. Kellicott, in the same work, mentions another food-plant, *Sparganium* (Bur Reed), but it is bored much less so than *Typha*.

This larva, and other species of such borers, could not well hibernate in either *Sagittaria* or *Pontederia*, the stems of which are too succulent and perish with the first killing frosts of Winter.

(To be continued.)

———o———

Description of a new Solitary Wasp.

By Wm. J. Fox, Phila., Pa.

Odynerus (*Odynerus*) **Aldrichi.**

♀.—Clypeus with coarse, separated punctures, with longitudinal folds or striæ, which are more obvious when viewed from certain positions, bidentate anteriorly and with a rather strong depression just behind the teeth; head coarsely and closely punctured, the punctures becoming sparse on the cheeks; first joint of flagellum equal in length to the two following united; thorax punctured like the head; scutellum strongly impressed medially; postscutellum when viewed from the front, crenulated; metathorax strongly depressed, with a strong, somewhat triangular excavation at base, rugose towards the sides, the metapleuræ with irregular, oblique striations; when viewed from behind the lateral margins of the metathorax are seen to be emarginate below the middle; hind coxæ armed with a strong tooth near the base on outer edge; first abdominal segment above with coarse, separated punctures, those on the second much finer, on the third segment the basal half is microscopically punctured, while on the apical portion it has coarse, close, shallow punctures; beneath the basal portions of the segments are finely punctured, the apical portion strongly so; black; two transverse, curved spots on clypeus at base, two minute dots behind antennæ, inner eye orbits on lower portion, large spot at top of cheeks, prothorax above, anteriorly, tegulæ, except outer margin and a spot near base which are brown, spot on mesopleuræ above, posterior margins of scutellum and postscutellum, the marks narrowed on each side, all bright yellow; a large spot on each side of first abdominal segment also yellow, connected by a greenish white band on apical margin of the segment, apical margins of dorsal segments 2–5 and a large spot on apical margins of ventral segments 2, 3 and 4, laterally, also

greenish white; scape beneath and the legs, except coxæ, trochanters and base of femora, rufo-testaceous; wings subhyaline, apical margins fuscous; nervures and stigma deep black; the median cell of fore wings with a ferruginous stain, the costal and median nervures beneath colored like the legs.

♂.—Clypeus deeply and roundly emarginate anteriorly, with fine, sparse punctures; first joint of flagellum scarcely as long as the two following united; clypeus entirely, scape beneath, and coxæ beneath yellow; legs with a yellowish tinge; flagellum beneath testaceous.

Var. Greater part of legs and hind margins of the abdominal segments yellow.

Brookings, S. Dakota (J. A. Aldrich); Colorado (coll. Amer. Ent. Soc.). The color of the legs will distinguish this species. Appears to occur abundantly from May 30th to June 10th, as Mr. Aldrich sent me about thirty specimens.

———o———

ELEMENTARY ENTOMOLOGY.

LEPIDOPTERA-HETEROCERA (Moths).

By Prof. JOHN B. SMITH, New Brunswick, N. J.

The little family Heterogynidæ belongs, in most respects, to the Zygænid series. In it the primaries have two, the secondaries three internal veins, as in the Pyromorphidæ. It differs, however, in having a distinct, free costal vein to the secondaries, while the absence of this vein is one of the distinctive features in the immediately preceding group of families. It is, perhaps, questionable whether we have any true Heterogynidæ in North America.

Following these, comes a small series of what may be termed Arctiid families. All agree in having only a single internal vein to the primaries and two in the secondaries. The costal vein of the primaries arises from the subcostal about one-third the distance from base. In one instance, *Euerythra*, it is altogether wanting. Vein 5, in both primaries and secondaries, belongs to the median series, and arises close to vein 4. The larvæ, in the majority of instances, are hairy caterpillars, usually transforming in a loose cocoon, in the manufacture of which the hairy clothing is used to eke out the scanty supply of silk. To facilitate this, the hair is quite commonly barbed or branched, so that it felts easily.

The Nycteolidæ are small moths that are usually puzzles to the

amateur. They have the wing form of Tortricids, and much of their habital appearance, but have the venation above described. Unlike all the other Arctids, however, the internal vein of the primaries is forked at the base. That is to say, two parallel veins start at the base and unite a short distance beyond into the normal single vein. The ocelli are present. We have as yet but two genera with three species described from our fauna, and of these *Sarrothripa lintneriana* is the common eastern species.

The Pericopidæ are very uncertainly separated from the Arctiidæ. In venation they differ chiefly in that veins 3 and 4, and 7 and 8, of the secondaries are stalked; that is, a single vein only starts at the point of origin, and this divides on its way to the outer margin. The species are often rather frail and long-winged, and have been compared to the Heliconinæ of the diurnal Lepidoptera. Some of the species, American and foreign, which were formerly referred here, have been of late proved to be Geometridæ!

The Lithosiidæ differ from the Arctiidæ by the absence of ocelli, but agree with them in almost all other structural characters. In the typical genus the primaries are narrow and elongate, while the secondaries are broad and proportionately large, but in our American forms we have all gradations from this to a really geometriform wing. It may not be amiss to say that here, too, an interesting amount of uncertainty exists—whether some species are not Geometridæ rather than Lithosiidæ. Some of the species resemble Noctuidæ, and others are sometimes mistaken for micro-lepidoptera. A reference to the venation will, in most cases, settle the question at once. There is a tendency in this family towards a loss of some of the veins of the secondaries, indicating an approach to the Syntomidæ, already treated.

The Arctiidæ differ from the Lithosiidæ by the presence of ocelli. They are larger, as a rule, but sometimes with very similar wing form. Indeed, almost any desired variety of wing form can be found in this family, which, by its bright and often strongly contrasting colors, is one of the most attractive to collectors. Two subfamilies are indicated in the American fauna: the Cydosiinæ, which have a roughened or tuberculate front, and the Arctiinæ, in which the head is normal, not rough or tuberculate. In many of the species in this family there is a tendency to a reduction in the spurs of the hind tibiæ, and frequently one of the pairs is wanting.

In volumes xxi and xxii of the "Canadian Entomologist," will be found an annotated catalogue of the Arctiidæ, in which the genera are described in some detail and the venation of the leading types is figured, and to this I would refer the student for further information concerning this family.

———o———

STUDIES IN NORTH AMERICAN MEMBRACIDÆ, II.

By F. W. Goding, M.D., Ph.D.

PUBLILIA Stal.

Publilia bicinctura n. sp.—Similar to *modestus* Uhler; more depressed and slender, with two diagonal white bands. Head broadly oval, unequal, blackish brown, with three smooth, slightly elevated, light spots, arranged in a triangle; eyes black; prothorax light green, with two whitish bands, the first originating near middle of inferior border passes diagonally forward and upward, crossing the median carina in the sulcus, the second starting about midway between the first and the apex parallel to it; both are narrowly bordered with dark brown, and several longitudinal lines of the same color mark the surface posterior to the first band; apex more attenuated than in its congeners; base of prothorax with a short, impressed, black line above each eye; tegmina clear, veins white; below piceous, upper surface of femora black. Legs otherwise light brown. Abdomen dark brown. Length 5 mm.

Described from two males and two females. Collected by Prof. Gillette in June and August, on *Glycyrrhiza lepidota*.

Hab.—Fort Collins, Colorado.

One example had the bands obsolete, and two had the dorsum largely ferruginous (types in coll. F. W. G.).

STICTOCEPHALA Stal.

Stictocephala gillettei Godg. ♂.—Differs from ♀ as follows: impressed lateral line extends from base of tegmina to apex of thorax; lateral carinæ meet at about the middle, and apex is less curved. Head grass-green, surface unequal; prothorax clouded with yellow; tegmina transparent with a tinge of green, and densely punctured; chest very pale green; femora yellow, covered with hairs; tibiæ marked with brown, tarsi light brown.

Collected by Prof. Gillette at Trinidad, Col., May 14, 1892.

HELIRIA Stal.

Heliria scalaris Fm. ♂.—Castaneous, speckled with yellow. Head yellow, mottled with castaneous, very broad between eyes, which are black, ocelli nearer each other than the eyes; prothorax castaneous, mottled with yellow, anteriorly with the yellow predominating, densely punc-

tured; median carina prominent, mostly shining black; crest compressed vertically just behind middle; above each eye a black impressed dot; a yellow stripe along posterior edge of crest half way to apex; sides posteriorly with several longitudinal carinæ; about middle of lateral borders a dark brown spot surrounded by a yellow ring; lateral angles produced; tegmina vitreous, punctured, veins piceous, base with piceous spot and posterior fourth nearly black; chest yellow, marked with piceous, hairy. Abdomen black, posterior edges of segments yellow, last segment brown. Legs testaceous, mottled with brown, tibiæ triquetrous and spined, tips of tarsi piceous. Length 8 mm.; width between lateral angles 4 mm.; altitude 5 mm.

Hab.—Fort Collins, Col. Described from a ♂ taken by Prof. Gillette, July 4, 1892.

STICTOPELTA Stal.

Stictopelta marmorata ♀, n. sp.—Form similar to *nova;* castaneous, mottled with yellow, the latter color predominating in anterior part. Head yellow, nearly quadrangular, a semi-circular line around apex, a spot contiguous to each ocellus, and a spot between these and each eye, dark brown; eyes very dark green, surrounded by a yellow ring; prothorax castaneous, mottled with yellow, darkest posteriorly; at the base, above each eye, is a shining, irregular, impressed scar; lateral borders white, this color extending from above base of tegmina nearly to apex, the tip of which is black; punctured lightly throughout; tegmina vitreous yellow, veins of corium piceous, apex lightly clouded; chest and abdomen yellow, ovipositor castaneous; femora yellow, tibiæ same color, outer surface brown, except the anterior pair; tarsi yellow, tips darker. Length 9 mm.; width 4 mm.; altitude 3 mm.

Described from one ♀ collected by Prof. C. H. T. Townsend.

Hab.—New Mexico.

Subfamily CENTROTINÆ Stal.

Centrodontus n. gen.—Head broad, short, almost spindle shaped, eyes large, globular; prothorax superiorly developed into a rounded gibbosity, lateral angles with a rounded tubercle, but destitute of horns; median carina percurrent; posterior prothoracic process extends beyond scutellum, which is bidentate at extremity, the process lying between these teeth; it is straight, long, narrow, sides nearly parallel, sometimes sinuate superiorly. Abdomen long, spindle shaped, reaching nearly to apex of tegmina; tegmina opaque, convex externally, when closed forming a concavity enclosing the abdomen; veins very prominent, the usual venation being interfered with by numerous irregular venules cutting up the regular cells; claws gradually attenuated to apex. Wings with three apical cells. Legs simple, posterior trochanters unarmed, feet simple.

Type of genus *Gargara atlas* Godg., described in ENT. NEWS, vol. iii, p. 110.

I am not acquainted with Signoret's *Gargara variegata* from Calabar, but judging from the description it may belong to this genus.

NOTES ON THE ENTOMOLOGY OF COLORADO—I.

By T. D. A. COCKERELL.

Notwithstanding the large amount of descriptive matter in our literature, relating to the insects of Colorado, the information available about the distribution of the species is very slight. Unless one has visited the State, I suppose it must be difficult to realize the enormous differences of country and climate, and correspondingly different faunæ, comprised within the boundaries of Colorado. Until recently, at least, it seems to have been the general opinion that to cite "Colorado" as the locality of a new species was enough, and so lately as May of the present year I find a new insect described with no better indication of the habitat, although it was received from Prof. Gillette, who would presumably have given the proper details for the asking. In the following notes I give, indeed, but scanty information about a few localities in the State; but such as it is, it may serve to indicate some facts which could not be gleaned from what has hitherto been published. I wish that others could be persuaded to follow the same lines of investigation, so as to substitute a fairly complete account for the present fragmentary records. For the identification of the insects referred to in this and future notes of the series, I have been greatly indebted to Mr. Ashmead, Dr. J. Hamilton, Prof. C. V. Riley, Mr. Hy. Edwards, Mr. W. H. Edwards, Dr. Horn and the U. S. National Museum. Unless a statement is made to the contrary, it is always to be understood that the imago is referred to, as is usual. In addition to the locality and the date, I have found it an excellent plan, especially if one has no aneroid, to note some of those forms of animal or plant life in the locality, which indicate the climate and altitude. Sometimes trees, etc., occur on mountain-sides in singularly well-defined zones; thus coming down from the head of Surface Creek to the Gunnison River, in Delta County, on the 5th of October, 1887, I noted the following zones:

(1) Zone of Spruce (*Picea engelmanni* Parry).
(2) " Quaking Asp (*Populus tremuloides* Michx.).
(3) " Oak Scrub (*Quercus undulata* Torr.).
(4) " Cedars (*Juniperus virginiana* L.) and piñons (*Pinus edulis*).
(5) " Sage brush (*Artemisia*).
(6) " Greasewood (*Chenopodiaceæ*).

I have nowhere else found the zones quite so well marked, or

so easy to observe, but throughout the mountains they are to be seen more or less clearly. In the fall, when the Spruce is green, the Quaking Asp yellow, and the Oak Scrub red, very beautiful effects are produced. In Custer County, I have found it convenient to divide the fauna as follows:

(1) High-Alpine fauna, living from 10,000 feet upwards.
(2) Mid-Alpine " " " " " down to 6500.
(3) Sub-Alpine " " " 6,500 " " the foothills.

These three faunæ, as will be explained in detail in a paper now preparing, are very different from one another. The terms may be used also when referring to other counties, but it must always be remembered that even between north and south Colorado there is a difference in the faunæ of a given altitude. Therefore, the tree-zones are in some ways more useful than a statement of the altitude. For detailed work, I divided Colorado into 78 counties and vice-counties, included in nine river basins, of which four are on the Atlantic, and five on the Pacific slope. Grand R. basin, on the Pacific slope, includes seventeen of these divisions, viz.: Saguache, N. W.; Hinsdale, N.; San Juan, N.; Ouray; Montrose, E.; Gunnison, S. (S. of Gunnison R., Taylor R., Willow Creek); Gunnison, N.; Mesa, N. E.; Delta; Pitkin; Eagle, S. (S. of Eagle R.); Eagle, N.; Summit, N. (N. of Little Snake R., Dillon, Cañon Creek); Summit, S.; Garfield, S.; Routt, S. E.; Grand, S.

SAGUACHE, N. W.

This is a triangular piece of country N. W. of the Cochetopa Hills, upper mid-alpine in character. In the Summit Park region, by the head of a tributary of Los Pinos Creek, *Populus tremuloides* and *Achillea millefolium* were noted. This was on October 13th, and the only insect recorded was a red *Chironomus* larva, similar to those found in England. The next day there was a snow-storm.

MONTROSE, E.

Contains low sub-alpine and mid-alpine districts, with great differences of climate. In 1887 I traveled from the Gunnison River *via* Montrose to Cimarron. The Uncompaghre Valley, north of Montrose, is a great barren plain, consisting of dried mud, baked and cracked in the sun; with scattered and solitary Chenopodiaceæ and such plants, and stunted cacti. On October 6th a strong breeze was blowing, and the scanty vegetation was

covered with dust. The heat was very great, so that one looked with some longing at the perpetual snow on the distant mountains. Two days after, traveling up Cedar Creek from Montrose, rain came on, and the abundant sticky mud of the roads made it nearly impossible to proceed. Although the temperature was not down to freezing point, I do not think I ever suffered so much from the cold as on this journey. Early next morning numbers of robins (*Merula migratoria*) passed on their migration to warmer regions. Below Montrose, *Malvastrum coccineum* was noted. This malvaceous plant is easily recognized, and is useful for indicating the kind of locality. It occurs on dry, open ground, up to about 8000 feet, or sometimes rather higher, belonging to the sub-alpine and lower, mid-alpine regions. On Cedar Creek, October 9th, species of *Colias*, *Coccinella*, *Vespa* and *Lucilia* were noted.

At Cimarron (6906 feet) I found a *Geophilus*, and also a new ichneumonid, since described by Mr. Ashmead as *Thersilochus montanus*. In the same neighborhood three beetles were obtained, afterwards identified as *Harpalus amputatus* Say, *Pterostichus longulus* Lec. and *Amara remotestriata* Dej. These three are all found also in the mid-alpine zone of Custer County.

GUNNISON, S.

Mid-Alpine, with some pretty and little-settled country. There is a pine wood between Allen and Powderhorn, which is rather unusual, firs being the dominant conifers in Colorado. Judging from the distribution of the two genera *Abies* and *Pinus*, it seems as if the former were ousting the latter; so we get, as in Custer County, *Pinus ponderosa* chiefly fringing the Spruce forests at their lower limit; and at and near timber-line a high-alpine *Pinus* of a different species, maintaining a somewhat precarious existence. When the pines were dominant, they seem to have gone a little higher than the firs, and hence the finding of logs and roots a little *above* the present timber-line. If this view is correct, it cannot be doubted that these changes have affected the insect fauna. The insects taken or noticed were *Bembidium indistinctum* Dej. and *Lucilia* sp. by Little Blue Creek; *Vespa* sp. on the East Twin Mesa; and *Pterostichus luczotti* Dej., the locality not exactly noted. A *Geophilus* was also found.

It will very likely be objected that the above notes are hardly entomological at all, and I send the paper with some fear lest it

should go into the editorial waste-paper basket on that account. But my defence is this: though we may interest ourselves in beetles or moths, or even in a single genus only, nature is a whole, of which every part depends, more or less, on every other. In Entomology, the study of *environments* is scarcely begun in any serious fashion, but yet we may well believe that it will lead to a better understanding of the *reason* of things than almost any other method of research. Future papers of this series will deal with other counties in which more insects were obtained.

ENTOMOLOGICAL NEWS.

Published monthly (except July and August), by the Entomological Section of the Academy of Natural Sciences, of Philadelphia, with the endorsement of the American Entomological Society. It will contain not less than 240 pages per annum. It will maintain no free list whatever, but will leave no measure untried to make it a necessity to every student of insect life, so that its very moderate annual subscription may be considered well spent.

ANNUAL SUBSCRIPTION $1.00, IN ADVANCE.

☞ All remittances should be addressed to E. T. Cresson, Treasurer, P. O. Box 248, Philadelphia, Pa.; all other communications to the Editor of ENTOMOLOGICAL NEWS, Academy of Natural Sciences, Logan Square, Philadelphia, Pa.

PHILADELPHIA, PA., OCTOBER, 1892.

WITH this number of the NEWS we have inaugurated a new department; that of Economic Entomology. We were fortunate in securing the services of Prof. John B. Smith to take charge of it as editor, and the NEWS and its subscribers are to be congratulated. Prof. Smith, as late curator of the Department of Entomology of the United States National Museum and at present State Entomologist of New Jersey, has had a ripe experience in this branch of Entomology, and we confidently predict this, our new departure, will become one of the most interesting features of the journal. Economic Entomology is growing in importance every day, and no one can fail to see its great usefulness, and while much has already been accomplished, we predict a great future for this part of our study. Prof. Smith, in his preliminary remarks, maps out the scope of the department, and what will follow each month cannot fail to be interesting, instructive and useful to all our readers, but more especially those in any way interested in agriculture or horticulture.

An Atchinson (Kan.) woman has brought up her chickens on the bugs collected from the machinery at the electric light station every morning.

DEPARTMENT OF ECONOMIC ENTOMOLOGY.

Edited by Prof. JOHN B. SMITH, Sc. D., New Brunswick, N. J.

IT is the intention of the editor of this department to keep the readers of the NEWS informed of the main lines of work done and results obtained by the economic entomologists, as evidenced in the Bulletins and Reports received. It is also desired to make it a means for the communication of new results attained by workers, which can be given here in brief, in advance of the more detailed accounts in the Experiment Station publications. The object is to give results or abstracts, rather than detailed accounts of experiments, and co-operation is invited, to aid in making this feature not the least valuable part of the NEWS.

The "Horn Fly," *Hæmatobia serrata*, is still spreading, and has covered a vast new territory during the past year. It now extends from Florida to Canada, and westward nearly to the Mississippi, causing alarm wherever it makes its appearance. There are none of the sensational accounts so common when it first appeared, but the facts are sufficiently bad. One curious, and somewhat encouraging fact is, that in New Jersey, which was one of the first, if not the first State invaded, the pest has very decidedly decreased in numbers, and is very seldom complained of. It seems now no more abundant than the common native cow-fly, *Stomoxys calcitrans*, and, indeed, in some of the localities most infested two years ago, is now scarcely noticed. There has also been a decided change in habit in New Jersey. That peculiarity which induced the common name "Horn Fly," has almost entirely disappeared. Nowhere did I observe any clustering about the base of the horns during the present season, and none of the farmers have noticed it. They now frequent the flank or the shoulder in company with *Stomoxys*. As to remedies, little that is new has been discovered. Spraying the cattle with the kerosene emulsion has proved very successful in some hands, while fish oil with an admixture of carbolic acid is a favorite with others. Spreading the droppings in the pasture every two or three days makes a cheap and certain way of preventing the larvæ from attaining maturity. In the stable, the droppings may be mixed with land plaster to absorb the liquid and make the mass too dry to serve as food for the maggots.

Among the imported pests, *Zeuzera pyrina* is causing great injury in Central Park, New York. Mr. E. B. Southwick exhibited, at Rochester, some very interesting specimens of the injury caused by this larva: trunks and branches of considerable size being completely girdled. Like so many introduced species, it is far more injurious in its new home, than it ever was in its own country, and the very great number of species of trees and shrubs attacked, makes it particularly obnoxious in a large park which depends so much for its beauty and attractiveness upon the variety of vegetation contained. No very effective means of combating this insect have been discovered as yet.

As an example of a slowly spreading insect, *Crioceris 12-punctatus* L. may be cited. It has been known from the vicinity of Baltimore for many years, but has been found for the first time in New Jersey during the present season. Curiously enough, I found it on volunteer asparagus only, though cultivated beds were just across the fence. It has never been as troublesome as its congener, *C. asparagi*, and is fully as pretty a beetle. This *C. asparagi*, by-the-bye, is fairly well controlled now-a-days by growers in New Jersey; they either cut all the shoots in the bed, forcing the beetles to oviposit on the heads which are sent to market, or the poorer shoots are allowed to grow until they become covered with eggs. They are then cut and destroyed, and in this easy manner the first brood of larva is reduced to a minimum. If farmers could be induced to destroy the volunteer asparagus growing along the road and in fence corners, the practice would be still more effective, but as it is, hundreds of eggs are allowed to develop in these neglected places and the new beetles find their way to the cultivated plants after the cutting season is over.

Farm practice to prevent insect injury is bound to become a subject of great importance in the near future. Poisons and insecticides generally, will always have a large field of usefulness, but we can often control insects easily and cheaply by taking advantage of some peculiarity of habit. I have called attention to some of the possibilities of this method in Bulletin No. 85 of the New Jersey Station, and further observations bring new applications of the principle. In Bulletin No. 21 of the Mississippi Experiment Station, Mr. H. E. Weed gives an account of the insects injurious to cabbage. All of the species treated are well known, and have been frequently written up, but the new and valuable facts are in the account of the "Harlequin Cabbage Bug," *Murgantia histrionica*. Mr. Weed has found that the hibernating bugs are especially fond of radish and mustard plants, and that they feed and oviposit on these in preference to the cabbage. By planting trap rows of mustard or radish in the cabbage fields the bugs are induced to congregate on them, and there they can be easily collected and destroyed, or kerosene can be used as a spray, thus destroying the insects. Kerosene when diluted so as to be safe for use on cabbage, is ineffective as against the adult bugs and their destruction on cabbage is thus out of question. The mustard or radish would be planted merely to be sacrificed in destroying the insects. In New Jersey the wild Cruciferæ are an important element in the life of our most serious cabbage pest—*Pieris rapæ*. It is upon these that the few spring butterflies lay their eggs, and upon these the larvæ develop before the cabbages are in condition to afford food for them. A conscientious early destruction of cruciferous weeds, would very materially lessen injury from "cabbage worms" later in the season.

Dr. E. W. Doran has a Bulletin on "Wheat Insects," No. 16 of the Maryland Agricultural Experiment Station. The insects treated are those that affect the stored grain, and the most important of them is the "Angumois Grain Moth," *Gelechia cereallela* Oliv. Dr. Doran made a num-

ber of experiments for the purpose of determining the degree of heat and length of the time necessary to destroy the insects, but obtained negative results only. Unfortunately, he does not seem to have tried duplicating the results obtained by Mr. F. M. Webster, which are referred to in the account. Naphthaline has proved satisfactory on experiment, and Dr. Doran recommends its use in bins of stored grain as a repellant. He says it also kills the moths in an air-tight vessel, but says nothing of its effects on the larvæ. A rather curious and interesting note is found in the account of the "Red Grain Beetle," *Silvanus cassiæ*. Not only were the insects excessively numerous in a bin of wheat middlings, but in that part in which they were most numerous the temperature of the material rose at one time to 95° F., a difference of 53° as compared with the temperature of the room and of other less infested parts of the grain.

Concerning the Carbon disulphide, a little experience of my own may prove of some interest. In the little patch of sod constituting my "front yard," a colony of large black ants had established themselves, and this year their nest or hill became too conspicuous to suit my views. The disc of loose soil was nearly two feet in diameter, while openings were found six inches to each side of that, making the space covered about three feet in diameter. On this space the grass began to die, and the great number of insects became annoying. To get rid of them I used a one pound bottle of Carbon disulphide, simply pouring it into the holes and then treading down the soil over the space occupied. I expected that, as a matter of course, the grass roots would be destroyed by this treatment, and that I would be compelled to re-sod. As against the ants, the substance was completely effective, no further trace of them being observed; but instead of losing my grass, it took a new start, growing rank and vigorous, and, while all around it was dry and parched by drought, this little patch remained bright and green, growing vigorously! It may be that the liquid sank into the loose soil so rapidly and deeply that the grass roots were not affected, and that the looseness of the soil proved an advantage to the grass on it, enabling it to better resist the dry weather; but whatever the explanation, such were the facts.

In Volume I, No. 1, p. 39, of the Kansas University Quarterly, Mr. V. L. Kellogg describes the early stages of *Melitara dentata* Grt. bred from the leaves of the prickly pear cactus, *Opuntia missouriensis* in Colorado, and finds the habits of the species very like those of *M. prodenialis* Wlk. described by Dr. Riley and myself. Among other matters he gives a description of the egg, which is said to be creamy-white in color; but he does not say where the eggs were found, nor how they are laid. Mr. H. G. Hubbard, in the course of a conversation in which the eastern species was mentioned, informed me that he has observed the eggs, and that they are set, one on top of the other, in such a way as to resemble exactly one of the spines or prickles of the plant. This is quite a remarkable instance of mimicry; the more as it is not the egg itself which is mimetic, but rather the arrangement by the parent moth, in which the individual appearance of the ova is lost in the impression created by the mass. It is quite probable that the western species will be found to have similar habits.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

[The Conductors of ENTOMOLOGICAL NEWS solicit, and will thankfully receive items of news, likely to interest its readers, from any source. The author's name will be given in each case for the information of cataloguers and bibliographers.]

To Contributors.—All contributions will be considered and passed upon at our earliest convenience, and as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for certain issue. Owing to low subscription rate, "extras" will be charged for, and when they are wanted, it should be so stated on the MS. along with the number desired. The receipt of all papers will be acknowledged.—ED.

Dr. R. OTTOLENGUI, of New York, had a very successful collecting trip to Mt. Washington, N. H.

Mrs. A. T. SLOSSON has, as usual, been collecting among the Northern Hills, at Franconia Notch, N. H.

Mr. PHILIP LAURENT and Dr. Henry Skinner spent two weeks collecting in Mitchell County, North Carolina.

Mr. I. C. MARTINDALE has recently been elected a member of the Entomological Society "Iris" in Dresden.

Mr. FRANK M. JONES, of Wilmington, Del., spent two weeks collecting in Richmond County, southern North Carolina.

WE have learned that Dr. H. Strecker, of Reading, has entirely rearranged his immense collection of Lepidoptera, and that it is now something magnificent.

Mr. PHILIP NELL and Mr. C. W. Johnson have been trying to make insects scarce in southern New Jersey. Mr. Nell discovered a very interesting locality for *Pamphilus leonardus* at Atco, where the species was found in abundance.

HAVING read the article in the April number of the NEWS on peach yellows and rosette, by W. H. Patton, I would like to ask if this gentleman is correct, why is the government at Washington spending so much time and money in trying to find the *cause* of peach yellows, as well as a remedy? It seems to me the above article should be corrected in order to avoid mistakes, or else the government ought to be notified of this great discovery.—G. R. PILATE, Griffin, Ga.

SOME time ago I read an account of the different classes of insects representing the different kind of governments, viz.: Ants representing Democratic or Republican; Bees, the Monarchial; and Butterflies the Anarchistic, etc., with the different explanations. Could you please let me know or publish where I could have seen it?—EUGENE R. FISCHER, No. 2707 Winnebago St., St. Louis, Mo.

We know of no such article. If any reader of the News can supply the information Mr. Fischer desires, no doubt he would be grateful.—Ed.

On July 3, 1892, the Entomological Society of Belgium tendered a banquet to the veteran entomologist, the Baron Edmond de Selys-Longchamps, on the occasion of the fiftieth anniversary of the publication of "La Faune de la Belgique," to which M. de Selys had contributed. M. Giron delivered a congratulatory address to the honored guest, referring to the chief events, scientific and political, of the latter's life. Baron de Selys is one of the oldest of living entomologists, having been born in Paris, May 25, 1813. The long and continuous list of his entomological publications begins with 1831, and extends into the present year.

The steamer "Kite" (September 19th) is on its way from Greenland to Philadelphia, bringing the members of the Peary Expedition and also the Academy Relief Expedition. It is stated that rich collections have been made of the flora, fauna and ethnology of North Greenland. It made almost a complete collection of water and land mammals, both in skins and skeletons; a large variety of birds and submarine animal life, a rare collection of flowering plants, mosses, lichens and insects, and of ethnological specimens. These collections become the property of the Academy of Natural Sciences of Philadelphia, and the Entomological Section will come into possession of the insects.

In the preface to the just published first volume of his Catalogue of Lepidoptera-Heterocera, referred to in our Literature Department, Mr. W. F. Kirby says: "The MS. of the whole of the remainder of the present work has been in an advanced state for some years, and it is proposed to issue it as follows: 'Vol. I. Sphinges and Bombyces (now published); Vol. II. Noctuæ; Vol. III. Geometræ and Pyrales; Vol. IV. Micro-Lepidoptera; Vol. V. Appendix, to date, and complete indices of both generic and specific names to the whole. The first four volumes will contain only an Index of Genera. It is perhaps only right to add that the possibility of completing the work must in part depend on the support accorded by entomologists to the successive volumes as they appear.'" The evident value of such catalogues will undoubtedly influence American entomologists to contribute their share of that support to which Mr. Kirby refers.

Cholera and Flies.—It may not be amiss to call the attention of the public to the great danger from house flies as agents in spreading the contagion should there be an epidemic of cholera. I have repeatedly observed that these insects will ride for a number of miles on street cars, and doubtless also upon other vehicles of transit, such as railway coaches, etc., though I have never made observations upon any conveyances but the ordinary tram or horse car. Suppose a case: imagine a cholera victim upon the street or anywhere else vomiting; the flies present are attracted and drink until sated, and have their feet and mouth parts wetted with the vomit containing the germs. They then, perhaps, fly out into the street, take a place on a horse car, ride several miles, dismount, fly

into another house, where the family are at dinner, and contaminate the food set before them with the germs of the cholera carried on the mouth parts and feet of the insects. Some of the family sicken and die, yet no one of them will ever, perhaps, suspect that the flies may have carried the germs, as supposed above, for miles from some other case. The safeguards are to at once clear away, disinfect with corrosive sublimate solution and scald the spots where the vomit has been thrown, and to be vigilant in the use of fly-screens, fly-traps, etc. During the late war the late Professor Leidy pointed out, with beneficent results, that the common house-fly was instrumental in spreading the contagion of hospital gangrene. Why not beware of this imprudent and ubiquitous little dipter in carrying and spreading the contagion of the dreaded Asiatic plague now menacing us?—JOHN A. RYDER, *in Public Ledger*.

GUNNING FOR BUTTERFLIES.—All, no doubt, are familiar with the usual methods and paraphernalia wherewith butterflies are captured and preserved; the man with the gauze net, poison bottle, cork-lined box, folded paper envelopes, wire pins and sundries *ad libitum*, long ago ceased to be a curiosity in civilized lands. But there are some unusual methods and implements, a description of which will be likely to prove of interest. Prominent among them is gunning for butterflies, an expedient that is most useful where tropic vegetation induces high flight, and renders by means of its density all chance for pursuit impossible. For this a small bore gun or rifle is best, and dust-shot, such as is used by the hummingbird hunters on the Amazon, or a water load is best. Any shot coarser than dust-shot will prove too heavy and will ruin the specimen for sale by tearing the wings. A gun that will scatter the dust widely should be selected, and even then a few shot bunched may tear off a head or an abdomen and ruin the prize. My own preference is for a rifle firing a 32-calibre, long cartridge, loaded with water. These cartridges can be obtained with an extra heavy charge of powder and without the ball in them. Before loading they should be smeared inside with melted paraffine applied with a camel's-hair brush; this prevents the water load from moistening the powder. But even with this precaution it is best to load only so many shells as are likely to be used during the day, and the water should be emptied from those that are left over at night. After filling the shell with water up to within a thirty-second of an inch from the rim, a tight-fitting, oiled wad can be forced down and a light coat of paraffine be applied on top with the brush. I have tried water thickened with starch, with gum arabic, and with gum tragacanth, but I have never been able to see that anything has been gained by thus rendering the charge somewhat more self-adherent. The water load is much more sure to bring yonr prize "to grass," and is not nearly so liable to tear and denude the wings. The dust-shot will often cause a large specimen to deflect its course, and by unmistakable signs show that it has been hit, yet will not bring it down.—*Goldthwaite's Geographical Magazine*.

Identification of Insects (Imagos) for Subscribers.

Specimens will be named under the following conditions: 1st, The number of specimens to be unlimited for each sending; 2d, The sender to pay all expenses of transportation and the insects to become the property of the American Entomological Society; 3d, Each specimen must have a number attached so that the identification may be announced accordingly. Exotic species named only by special arrangement with the Editor, who should be consulted before specimens are sent. Send a 2 cent stamp with all insects for return of names. Before sending insects for identification, read page 41, Vol. III. Address all packages to ENTOMOLOGICAL NEWS, Academy Natural Sciences, Logan Square, Philadelphia, Pa.

Entomological Literature.

ZOOLOGISCHER ANZEIGER, No. 394.—On the larva of *Lagoa*, a Bombycine caterpillar with seven pairs of abdominal legs; with notes on its metameric glandular abdominal processes, Alpheus S. Packard. On ants in thorns of African Acacias, Prof. E. Emery.

REVUE BIOLOGIQUE DU NORD DE LA FRANCE, 4e An. No. 10, July, 1892. —Memoir on some *Acarina* and *Thysanura*, parasites or mess-mates of ants, R. Moniez.

CANADIAN ENTOMOLOGIST, July, 1892.—Notes on Coleoptera, John Hamilton. A new species of *Eudamus* H. Skinner. Notes on North American Tachinidæ, with descriptions of new genera and species, C. H. T. Townsend. Insects attracted by fragrance or brilliancy of flowers for cross-fertilization, R. E. Kunze. New North American Microlepidoptera, C. H. Fernald. New forms of *Ichthyura*, H. G. Dyar.—August, 1892. The first or post-embryonic stage of the pea and bean weevils, C. V. Riley. Some notes on the margined soldier beetle (*Chauliognathus marginatus*), C. V. Riley. The species of *Mamestra*, A. R. Grote. Mr. Walker's types, A. R. Grote. Ovipositing of *Melitea chalcedon* in paper envelopes, R. E. Kunze, M.D. Lepidoptera from Marshall Pass, Colorado, T. D. A. Cockerell. Biologic notes on New Mexico insects, C. H. T. Townsend. A list of the butterflies found at Marshall, Mo., and vicinity, Owen J. Staley.—September. Presidential address, Entomological Club, A. A. A. S., E. A. Schwarz. Some beautiful new Bombycids from the west and northwest, B. Neumoegen. Preparatory stages of *Catocala stretchii* Behr., G. H. French. Synopsis of the North American species of *Astatus*, W. J. Fox.

TRANSACTIONS OF THE ENTOMOLOGICAL SOCIETY OF LONDON, 1892, Pt. 2.—Additions to the Longicornia of Mexico and Central America, with remarks on some of the previously recorded species, by the late H. W. Bates (74 n. sp. and 6 new genera).

NEW MEXICO AGRICULTURAL EXPERIMENT STATION, Bulletin No. 7, 1892.—Scale insects in New Mexico, C. H. T. Townsend.

THE KANSAS UNIVERSITY QUARTERLY, I, 1, 1892.—Notes and descriptions of Syrphidæ, W. A. Snow. Notes on *Melitera dentata* Grt., V. L. Kellogg. Diptera Brasiliana, pt. 2, S. W. Williston.

SOUTH DAKOTA AGRICULTURAL COLLEGE EXPERIMENT STATION, Bulletin No. 30.—Parasites of the large willow saw-fly; bee keeping; soapsuds for cabbage lice, I. H. Orcutt, J. M. Aldrich.

MARYLAND AGRICULTURAL EXPERIMENT STATION Bulletin No. 16.—Insects injurious to the grain of wheat, E. W. Doran.

PROCEEDINGS OF THE ENTOMOLOGICAL SOCIETY OF WASHINGTON, vol. ii, No. 2.—The insect collections in the Berlin Museum. Notes on the genus *Melittobia*, W. H. Ashmead. Mimicry in spiders. A new genus of Phalangiidæ. On *Prodidomus rufus* Hentz, Nathan Banks. Notes on the food habits of some species of Chrysomelidæ, F. H. Chittenden. The ravages of *Liparis monacha* in Germany, and means of defense and results of work against *Liparis monacha* in Europe, B. E. Fernow. A list of spiders from Indiana, W. H. Fox. Note on the foodplants of some Capsidæ from vicinity of Washington, D. C., Otto Heidemann. Appearance of mealy bugs parasitized by *Leptomastix*. Habits of *Melittobia*, L. O. Howard. A study of the ovipositor in Hymenoptera, C. L. Marlatt. A list of the Aranæa of the District of Columbia. A contribution to the study of the spider fauna of the Arctic regions. Notes on the classification of the Ixodidæ. Contributions to the knowledge of the life-history of Arachnida, Geo. Marx. Peculiar habits of *Ammophila gryphus* Sm., T. Pergande. Notes on *Lema Sayi*, W. D. Richardson. Note on the life-habits of *Megilla maculata*. On the larva and some peculiarities of the cocoon of *Sphecius speciosus*, Mexican jumping bean. On the insects affecting the Agave. A probable microgaster parasite of *Eleodes* in the imago state. Our American ox warbles. Further note on *Carpocapsa saltitans* and on a new *Grapholitha* producing jumping beans. Fig insects in Mexico, C. V. Riley. Note on *Phylobius*. A correction. Food habits of *Halticini*. Verdigris in Coleoptera. Time of flight in Lachnosterna, E. A. Schwarz.

INSECT LIFE, Washington, D. C., vol. iv, Nos. 9 and 10.—Pea and bean weevils. The ox bot in the United States, C. V. Riley. Ravages of the leopard moth in Brooklyn, Nicholas Pike. How far do bees fly?, Frank Benton. Note on the water bug found by Rev. J. L. Zabriskie, E. Bergroth. Early published references to some of our injurious insects, F. M. Webster. Strange developments of Stomata on *Carya alba* caused by Phylloxera, D. A. Owen.—11 and 12, August, 1892.—Some interrelations of plants and insects, C. V. Riley, figs. A new *Icerya* parasite, L. O. Howard. The West Indian rufous scale (*Aspidiotus articulatus* Morgan), T. D. A. Cockerell. Life-history of *Calothysanis amaturaria* Walk., a Geometrid moth, A. S. Packard. Steps towards a revision of Chambers' Index, with notes and descriptions of new species, Lord Walsingham. Notes on *Lachnosterna*, G. H. Perkins.

THE ENTOMOLOGIST, August, 1892.—On the identification of *Attacus atlas* Linn. and its allies, with remarks on some other species of the genus, W. F. Kirby. Notes on the synonymy of Noctuid moths, A. G. Butler.

DIRECTIONS for collecting and preserving insects, C. V. Riley, being part of Bulletin of the U. S. National Museum, No. 39, pp. 149, illustrated.

JOURNAL OF THE LINNEAN SOCIETY 24, 149–50.—Catalogue of the described Hemiptera-Heteroptera and Homoptera of Ceylon, W. F. Kirby.

REVISION of the genus *Cucullia;* Revision of the Dicopinæ; Revision of *Xylomiges* and *Morrisonia*, John B. Smith, in Proc. U. S. National Museum, vol. xv, pp. 33–86.

THE ENTOMOLOGIST'S RECORD, August, 1892.—Protective resemblance, W. Farren. Fecundity of *Spilosoma lubricipeda*, Geo. Hollis. The ova state of Geometræ, C. Fenn.

LIST of types of some species of Lepidoptera, described by Grote and Robinson, in the American Museum of Natural History, Wm. Beutenmüller. Ext. Bull. Am. Mus. Nat. Hist., N. Y.

NOTES on the Transformations of some species of Lepidoptera, Henry Edwards and S. Lowell Elliott; edited with additions, by Wm. Beutenmüller. Ext. Bull. Am. Mus. Nat. Hist., N. Y.

SOME notes on transformations of Australian Lepidoptera made by the late Henry Edwards, with notes and additions, Wm. Beutenmüller. Ext. Bull. Am. Mus. Nat. Hist., N. Y.

ON the earlier stages of some species of North American moths, W. Beutenmüller. Ext. Bull. Am. Mus. Nat. Hist., N. Y.

BIOLOGIA CENTRALI-AMERICANA, Part 102, May, 1892.—Arachnida Araneidea, O. P. Cambridge, pp. 97–104. Coleoptera: vol. iv, pt. 2, G. C. Champion, pp. 393–400, pl. 18; vol. vii, H. S. Gorham, pp. 169–176. Lepidoptera-Heterocera: vol. ii, H. Druce, pp. 25–48, pl. 44. Diptera: vol. iii, S. W. Williston, pp. 73–89, pl. 2.—Pt. 103, July, 1892. Lepidoptera Heterocera, vol. ii, pp. 49–96, pls. xlv–xlviii, H. Druce.

OTTAWA NATURALIST, vol. vi, No. 4.—The fall web worm (*Hyphantria cunea*), J. Fletcher.

ANNALS AND MAGAZINE OF NATURAL HISTORY, ix, 54.—Descriptions of new genera and species of Pyralidæ contained in the British Museum collection, W. Warren.

LEPIDOPTERA INDICA by F. Moore. Pt. 10. Continues Satyrinæ; 7 colored plates.

A monograph of Oriental Cicadidæ by W. L. Distant. Pt. 5, pp. 97–120, 3 plates.*

REVISTA DEL MUSEO DE LA PLATA, ii, 1891.—Argentine Dipterology,* F. L. Arribalzaga, pp. 135–172, 5 plates.

* Contains new species other than North American.

JOURNAL OF THE ROYAL MICROSCOPICAL SOCIETY, August, 1892.—Note on the process of oviposition as observed in a species of cattle tick, R. T. Lewis, 1 pl.

BULLETINO DELLA SOCIETA ENTOMOLOGICA ITALIANA xxiv, 1, Florence, June 30, 1892.—On glandular cells of post larval origin, E. Verson, 1 pl. Researches on some sense organs in the antennæ of ants, G. Sergi.

ENTOMOLOGISCHE NACHRICHTEN, Berlin, xviii, 12, June, 1892.—A noteworthy case of mimicry, K. M. Heller.—16, August, 1892. A fighting and sociable male bee, C. Verhoeff.

DEUTSCHE ENTOMOLOGISCHE ZEITSCHRIFT, v, 1 (Lepidopterologisches Heft), Juue, 1892.—On the family Siculidæ Guenée,* Dr. A. Pagenstecher, 1 pl. New species and varieties of palæarctic Geometridæ from my collection, Dr. O. Staudinger.

BULLETIN DE LA SOCIETE IMPERIALE DES NATURALISTES DE MOSCOU, 1891, 4; 1892.—Essay on a classification of the Sphegidæ in the Linnean sense, according to the structure of the copulatory armature, O. Radoszkowski, 5 plates.

U. S. DEPARTMENT OF AGRICULTURE, DIVISION OF ENTOMOLOGY, Bulletin No. 20.—Reports of observations and experiments in the practical work of the division, etc., Washington, 1892.

MEMOIRES SUR LES LEPIDOPTERES, REDIGES par N. M. Romanoff, Tome vi, pp. 700, 16 pl. col., St. Petersbourg, 1892.

TRANSACTIONS OF THE AMERICAN ENTOMOLOGICAL SOCIETY, xix, No. 2, Philadelphia, 1892.—Notes on North American Tachinidæ, *sens. str.*, with descriptions of new genera and species, III, C. H. T. Townsend. Preliminary notes on some African Odonata,* P. P. Calvert.

TRANSACTIONS AND PROCEEDINGS OF THE NEW ZEALAND INSTITUTE, 1891, xxiv, Wellington, May, 1892.—Further *Coccid* notes, with descriptions of new species and remarks on *Coccids* from New Zealand, Australia and elsewhere, W. M. Maskell, 13 plates. Catalogue of the described species of New Zealand Araneidæ, A. T. Urquhart.

BIOLOGISCHES CENTRALBLATT, ERLANGEN, September, 1892.—Contributions to the biology of the Phryganeidæ, Grafin Maria v. Linden.

ANNALES DE LA SOCIETE ENTOMOLOGIQUE DE BELGIQUE, xxxvi, 8, Brussels, August 6, 1892.—A special form of temporary colonies of *Coccinella septempunctata*, F. Plateau. Phytophaga of Chota Nagpore,* A. Duvivier.

MEMOIRES (of the same).—I. Synonymical catalogue of the Buprestidæ described from 1758 to 1890, C. Kerremans, pp. 304.

ZOE, III, 2, San Francisco, July, 1892.—Notes on the Tenebrionidæ observed in San Diego County, F. E. Blaisdell. Insects affecting Yucca blooms, C. H. T. Townsend.

* Contains new species other than North American.

A Synonymic Catalogue of Lepidoptera Heterocera (Moths), by W. F. Kirby. Vol. i, Sphinges and Bombyces. London: Gurney & Jackson, 1892, pp. xii, 951. Containing the full synonymy of every species described up to May, 1892, and a complete alphabetical index of genera. Price, £2 2s. nett.

NEW SPECIES OF NORTH AMERICAN INSECTS DESCRIBED IN THE PRECEDING LITERATURE.

LEPIDOPTERA.

Cucullia similaris, C. obscurior, C. dorsalis, C. bistriga, C. cinderella, Eutolype bombyciformis, Copipanolis borealis, C. fasciata, Xylomiges peritalis, X. ochracea J. B. Smith, Proc. U. S. National Museum, vol. xv, pp. 33–86.

Grapholitha sebastianiæ Riley, Proc. Ent. Soc. Washington, ii, 2, p. 214.

Eudamus coyote Skinner, Can. Ent. July, 1892, p. 164, Texas.

Ichthyura multnoma, I. albosigma var. *specifica* Dyar, Can. Ent. July, 1892, p. 179.

Heliodines tripunctella p. 384, *H. sexpunctella, H. unipunctella*, Walsingham. Insect Life, iv, p. 385, 1892.

Aegeria rubristigma Kellicott, Can. Ent. xxiv, p. 211, Ohio.

Bombycidæ: *Melia* n. g. Neumoegen, Can. Ent. xxiv, p. 225; *M. danbyi* id., Brit. Col. *Hyparpax venus*, p. 226, Col. *Notodonta descherei* p. 227, Brit. Col. *Halesidota sanguivenosa*, p. 228, B. C.

New species of Heterocera from Mexico and Central America, Druce, Biol. Cent. Am. Lepid.-Heter., ii, pp. 49–96.

HYMENOPTERA.

Cerchysius iceryæ L. O. Howard, Insect Life, iv, 11 and 12, p. 379, 1892.

Astatus pygidialis Fox, Can. Ent. xxiv, p. 234, N. J., Tex.

ARANEINA.

Datames caspari Marx, Proc. Ent. Soc. Washington, ii, 2, p. 254, Mex.

Caddo n. g. Phalangidæ. *Caddo agilis* Banks, Proc. Ent Soc. Wash., ii, 2, p. 249.

DIPTERA.

Callicera montensis, Melanostoma n. sp. ; *Syrphus ruficauda, Brachyopa cynops* Snow, Kansas University Quarterly, i, 1, p. 34, 1892. Eight new species of *Conops* Snow, Kansas Univ. Quarterly, i, 1, p. 43.

New genera and species of North American Tachinidæ, Townsend, Can. Ent. July, 1892, p. 165.

ENTOMOLOGICAL NEWS for September, was mailed August 31, 1892.